LANDFILL METHANE OUTREACH PROGRAM
5TH ANNUAL CONFERENCE

GREEN POWER WORKSHOP
POOLING RESOURCES

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Who is AMP-Ohio?

- American Municipal Power-Ohio, Inc. (AMP-Ohio)
- Formed in 1971
- Wholesale power supplier and services provider for municipal electric systems
  - 79 Ohio members
  - 3 Pennsylvania members
  - 2 West Virginia members


Pioneer
Holiday City
Montpelier
Tontogony
Haskins
Genoa
Elmore
Oak Harbor
Woodville
Bowling Green
Bryan
Edgerton
Napoleon
Pemberville
Bradner
Custar
Cygnet
Bloomdale
Deshler
Arcadia
Republic
Carey
Wharton
Sycamore
Ohio City
Mendon
Wapakoneta
Waynesfield
Celina
St. Marys
Lakeview
New Knoxville
New Bremen
Jackson Center
Minster
Versailles
Piqua
Arcanum
Tipp City
South Vienna
Eldorado
Yellow Springs
Lebanon
Hamilton
Blanchester
Jackson
Glouster
Gorsuch Station
Woodsfield
New Martinsville
West Virginia
Phillipi
OMEGA JV5
Westerville
Columbus
Prospect
Galion
Lucas
Shelby
Plymouth
Shiloh
Lodi
Milan
Clyde
Monroeville
Amherst
Oberlin
Wellington
Greenwich
Cleveland
Painesville
Hudson
Newton Falls
Grafton
Niles
Cuyahoga Falls
Wadsworth
Seville
Marshallville
Orrville
Columbiana
Brewster
Beach City
Dover
St. Clairsville
Pennsylvania
Grove City
New Wilmington
Elwood City
AMP-Ohio
Member Map

Who is AMP-Ohio?

SERVICES PROVIDED TO MEMBERS:

- **Power supply**
  (24-Hour Energy Control Center)
- **Technical**
  (Including Engineering and Environmental)
- **Financing**
- **Marketing and public relations**

Who is AMP-Ohio?

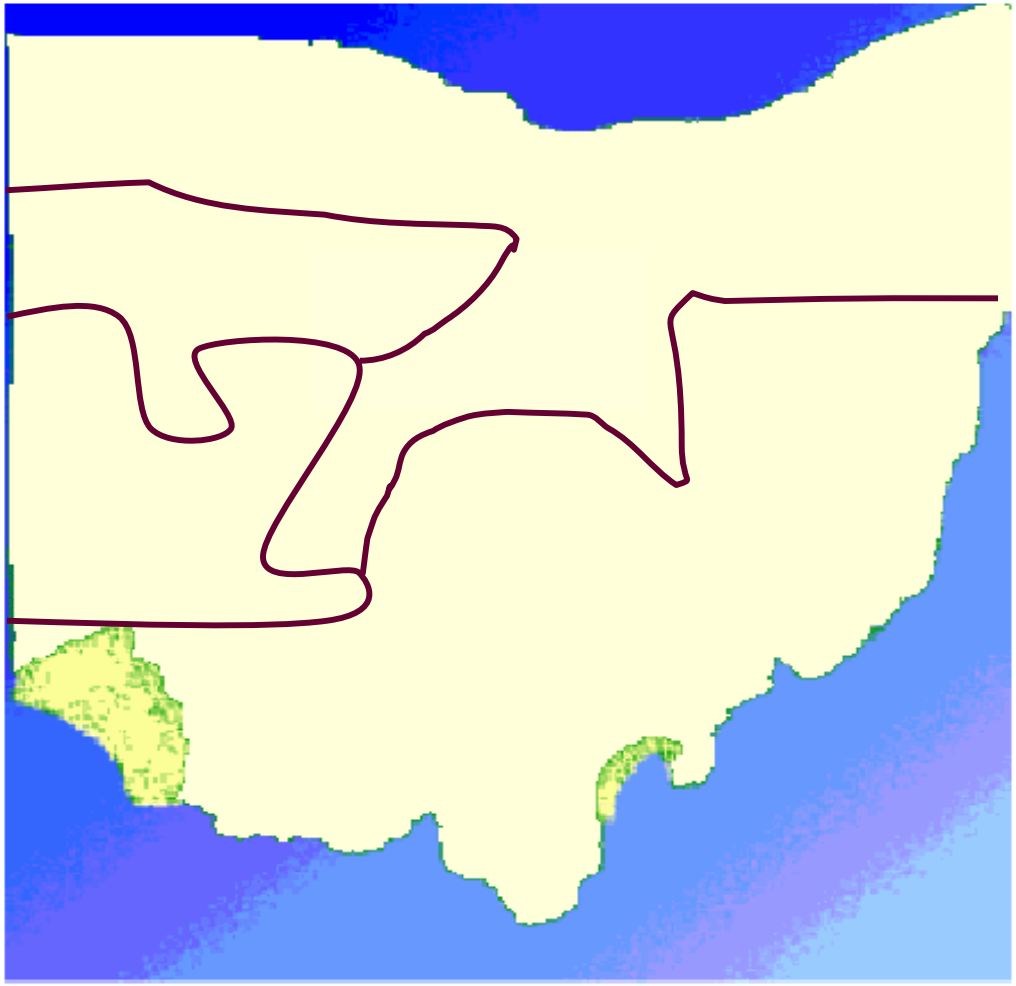
Diverse power supply mix:

- Experienced in wholesale power market
- Richard Gorsuch Generating Station
- Belleville Hydroelectric Project
- Distributed generation
- Landfill gas

AMP-Ohio Members Peak Loads

Ohio Municipal Electric Systems	1793
Pennsylvania Municipals	29
West Virginia Municipals	16
TOTAL	1838

Investor Owned Utilities of Ohio



Landfill Gas Project

Location
Various landfills in Ohio

Type & Size
Small reciprocal engines designed for landfill gas - Duetz 1325 kW units.

Arrangement
AMP-Ohio would purchase 24 MW

Term
13 years
November 1, 1998
through October 31, 2011

Commercial Date of Units
January 1, 2002

Rate
$0.32/kW per day
(6 days per week)
2.9cents/kWh on Peak
1.855 cents/kWh off Peak

Escalators
None

Transmission
Delivery point is into the FirstEnergy system

Contractual Arrangement

Power Purchase Agreement between AMP-Ohio and the Seller

Seller is Obligated to:

- **Install all capital improvements**
  (including metering)
- **Responsible for all operations and maintenance**
- **Responsible for cost for local transmission**
  (i.e. actual construction costs, line losses and ancillary charges to the designated delivery point)

Contractual Arrangement

AMP-Ohio is Obligated to:

- Purchase from the Seller electric capacity and energy from 3 system sites specified
- AMP-Ohio's obligation to purchase capacity and energy is subject to its ability to execute similar agreements with its members
- AMP-Ohio pays only for capacity and energy that is delivered by Seller

  (Firmness of supply not 100%)


Landfill Gas Site
Ottawa County, Ohio

Network Service

Aggregated 37 municipalities in FirstEnergy territory.

Allowed AMP-Ohio to sell shares of landfill gas power to individual municipalities in less than 1 MW blocks.

Aggregate of all 22 landfill purchasers equals 24 MW.

Network Service allows for easy replacement of power when generators not at full load.

Dynamic Schedule

- Since landfills were inside FirstEnergy control area, landfill power does not need to be scheduled.
- End of hour meter equals schedule that is credited to AMP-Ohio.
- Allowed innovative contract where landfill is only paid for the production.

Dynamic Schedule

- No imbalance penalties charged to landfill generators.
- Only penalty for non-production is loss of revenue.
- Limited the risk of AMP-Ohio of paying fixed charge without receiving any energy.

Behind the Meter Connection

- Lorain County landfill generators connected to City of Oberlin distribution system.
- Avoided negotiations with FirstEnergy over interconnection agreement.
- Generation physically remains in Oberlin.
- Other power sources delivered to remaining 36 municipalities.

- The following compares the cost of energy provided from the Landfill Gas Energy Project (LGES) to power that is available in the firm power market.
- The firm market price is based on futures prices listed on the New York Mercantile Exchange for power delivered to the Cinergy hub.
- The delivery point for both sources is the same and is listed in the title.

Cost of Landfill Gas Delivered to FirstEnergy Customer 2001 through 2011

Delivery Point (1)	LGES Amount (2)	Annual Capacity Rate ($/kW-mo) (includes FE transmission) (3)	Annual Capacity Charge (for Base Amount) (4) = (2) x (3)
FE	24,000	$9.35	$2,693,102

On-Peak Energy Charge

On-Peak Energy Rate = $0.029/kWh

Number of Hours On-Peak (5) = (312 x 16)	Number of kWH On-Peak (6) = (5) x (2)	On-Peak Energy Charge (7) = (6) x .029/kWh
4,992	119,808,000	$3,474,432

Off-Peak Energy Charge

Off-Peak Energy Rate = $0.01855

Number of Hours Off-Peak (CF=.9) (8) = (8760)	Number of kWH Off-Peak (9)	Off-Peak Energy Charge (10) = (9) x .01855/kWh
4,992	81,388,800	$1,509,762

Effective Rate for the LGES Project ($ per MWh): $38.158

LGES Cost: $7,677,267

Market Cost of Short-term Delivered to FirstEnergy Customer
April 1999 to March 2000

Delivery Point (1)	Amount (2)	Annual Capacity Rate ($/kW-mo) (includes FE & AEP transmission) (3)	Annual Capacity Charge (for Base Amount) (4) = (2) x (3)
FE	24,000	$5.905	$1,700,775

On-Peak Energy Charge

On-Peak Energy Rate = $0.0445/kWh

Number of Hours On-Peak (5) = (250 x 16)	Number of kWH On-Peak (6) = (5) x (2)	On-Peak Energy Charge (7) = (6) x .0445/kWh
4,000	96,000,000	$4,272,000

Off-Peak Energy Charge

Off-Peak Energy Rate = $0.01855

Number of Hours Off-Peak (CF=.9) (8)	Number of kWH Off-Peak (9) = (8) x (2)	Off-Peak Energy Charge (10) = (9) x .01855/kWh
3,884	93,216,000	$1,729,157

Effective Rate for Market Power ($ per MWh): $36.634

Total Market Cost: $7,701,932